

## 7.9 Square Root Functions and Inequalities

Square root function--a function that contains a square root of a variable

What is the inverse of

$$f(x) = x^2 ?$$

$$\begin{aligned} y &= x^2 \\ \sqrt{x} &= \pm y \end{aligned}$$

$$f^{-1}(x) = +\sqrt{x}$$

Graph in the real number system.

$$y = \sqrt{2x + 3}$$

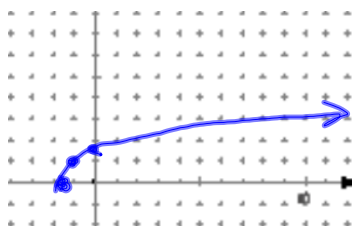
$$\begin{aligned} 2x + 3 &\geq 0 \\ x &\geq -\frac{3}{2} \end{aligned}$$

x	y
$-\frac{3}{2}$	0
$-\frac{1}{2}$	1
0	$\sqrt{3}$

D:

R:

$$\begin{aligned} x &\geq -\frac{3}{2} \\ y &\geq 0 \end{aligned}$$



$$y = \sqrt{\frac{3}{2}x - 1}$$

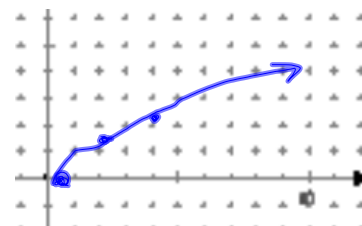
$$\begin{aligned} \frac{3}{2}x - 1 &\geq 0 \\ x &\geq \frac{2}{3} \end{aligned}$$

x	y
$\frac{2}{3}$	0
2	1
4	$\sqrt{2}$

D:

R:

$$\begin{aligned} x &\geq \frac{2}{3} \\ y &\geq 0 \end{aligned}$$



$$y = -\sqrt{2x} + 1$$

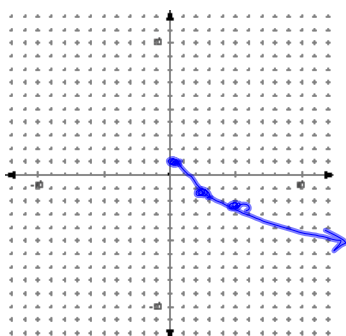
$$2x \geq 0$$

$$x \geq 0$$

x	y
0	1
2	-1
4.5	-2

D:  $x \geq 0$

R:  $y \leq 1$

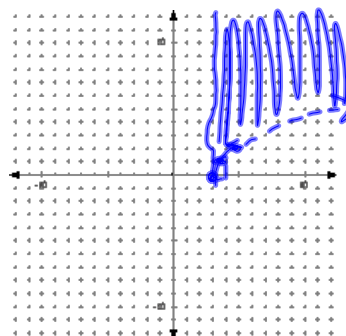


## Inequalities

$$y > \sqrt{3x - 8}$$

$$3x - 8 \geq 0$$

x	y
8/3	0
3	1
4	2

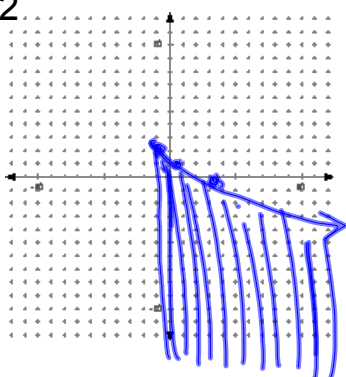


$$y \leq -\sqrt{x+1} + 2$$

$$x+1 \geq 0$$

$$x \geq -1$$

x	y
-1	2
0	1
3	0



HW

p398

~~15-31 odd~~

21-29 odd